


El uso de machine learning para la investigación en asuntos públicos

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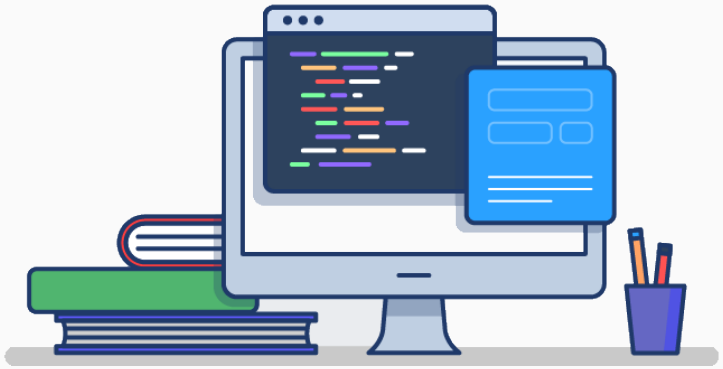
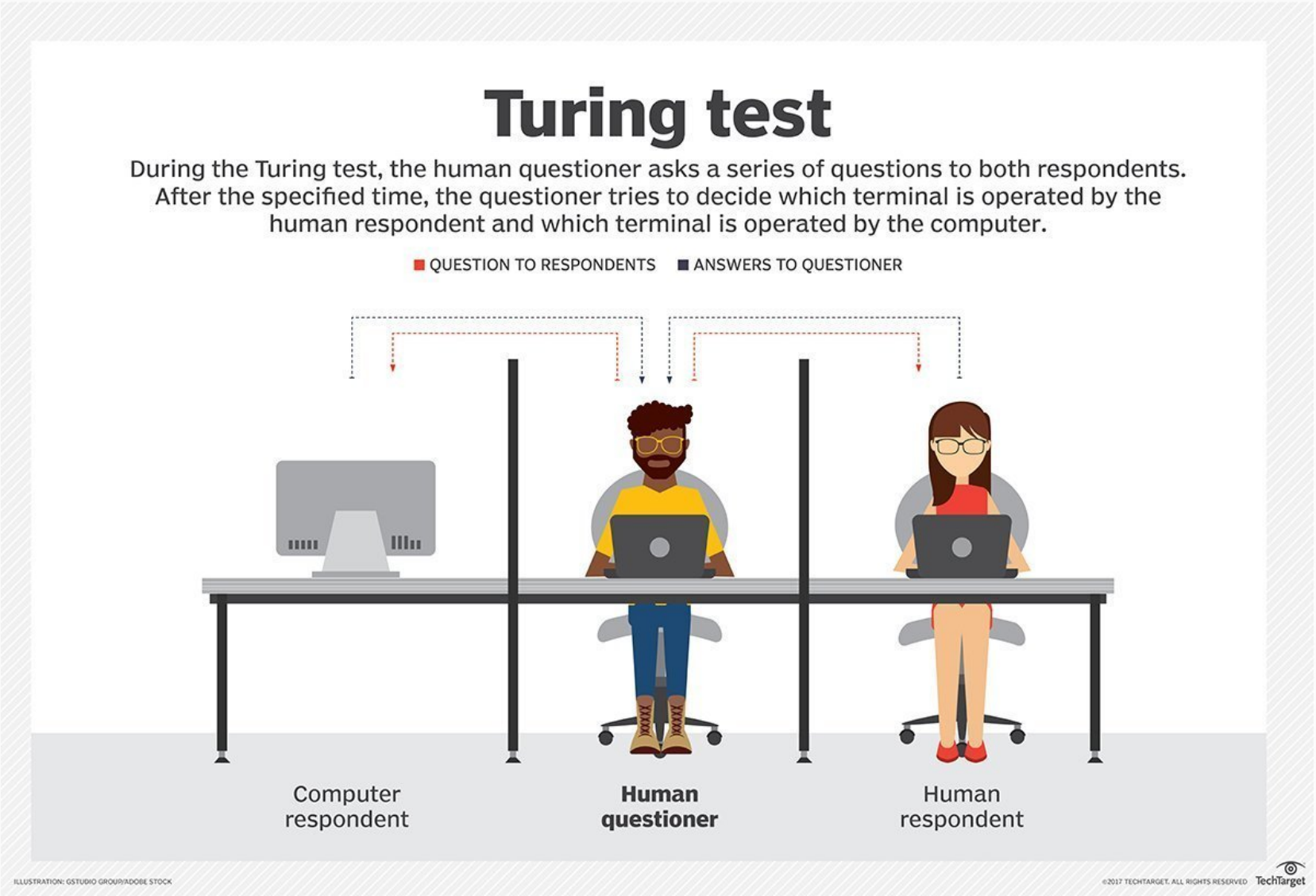
Tabla de contenidos



Inteligencia artificial y machine learning

Inteligencia artificial



Inteligencia artificial

Se asocia la IA con la capacidad de crear programas que puedan realizar operaciones como los humanos, por ejemplo, razonamiento lógico y aprendizaje.

Para pasar el test de Turing sería necesario:

- Procesamiento de lenguaje natural (NLP)
- Almacenar información
- Razonamiento (econometría clásica) y aprendizaje automático (ML)
- Percepción del entorno y robótica (interactuar)

Aprendizaje automático

ML se puede considerar un subcampo de computer science que construye **algoritmos** para resolver un problema práctico básicamente usando recopilación de **big data** y la construcción de modelos a partir de esos datos.

- Requiere de cierta capacidad de procesamiento
- No necesariamente hay teoría para entender relaciones
- La inteligencia artificial puede aprender de relaciones subyacentes en big data

Aprendizaje supervisado para encontrar $Y = f(X)$: $(X_i, Y_i)_{i=1}^n$

Aprendizaje no supervisado (patrones): $(X_i)_{i=1}^n$

Procesamiento automático de información

Aunque actualmente existen técnicas para producir de forma automática datos sobre eventos en ciencia política y administración pública, mayoritariamente se continúa utilizando codificación manual.

La **codificación manual es costosa** en tiempo y recursos e impide garantizar la **reproducibilidad** del proceso (Radford, 2019).

Desde mediados de la década de 1990 los esfuerzos de codificación automatizada para elaborar conjuntos de datos de eventos y fenómenos de interés público han crecido. La mayoría de estos conjuntos de datos han sido construidos con fuentes abiertas de noticias y se han procesado con diccionarios pre-elaborados.

Reconocimiento óptico de información del servicio civil

Algoritmo OCR para servicio civil chileno

Bastián González-Bustamante, Matías Astete y Berenice Orvenes

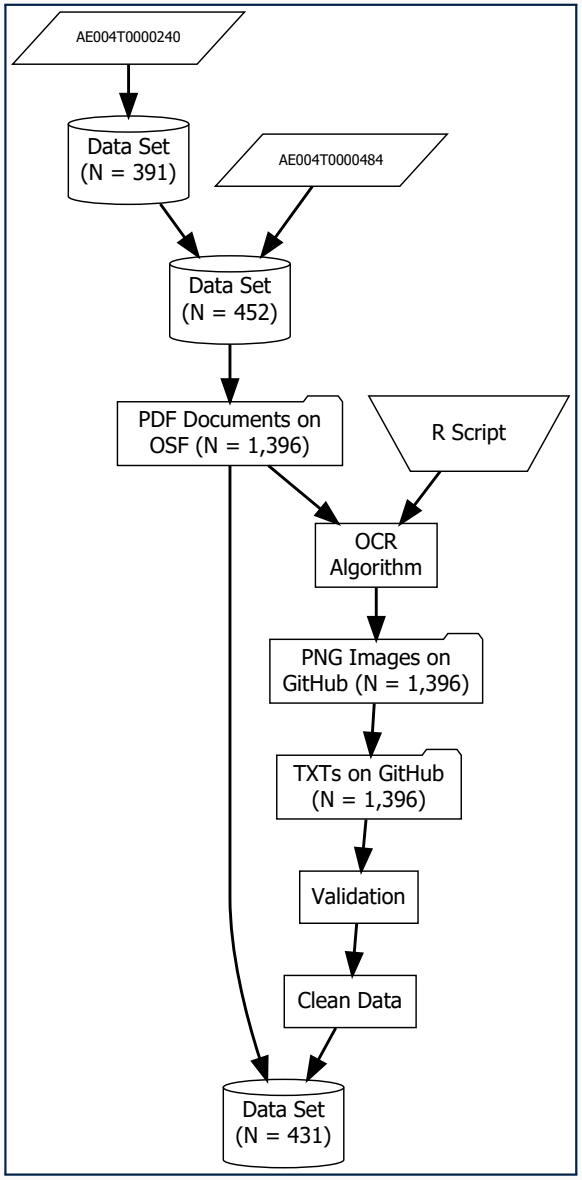
DOI: 10.17605/OSF.IO/WBF6M

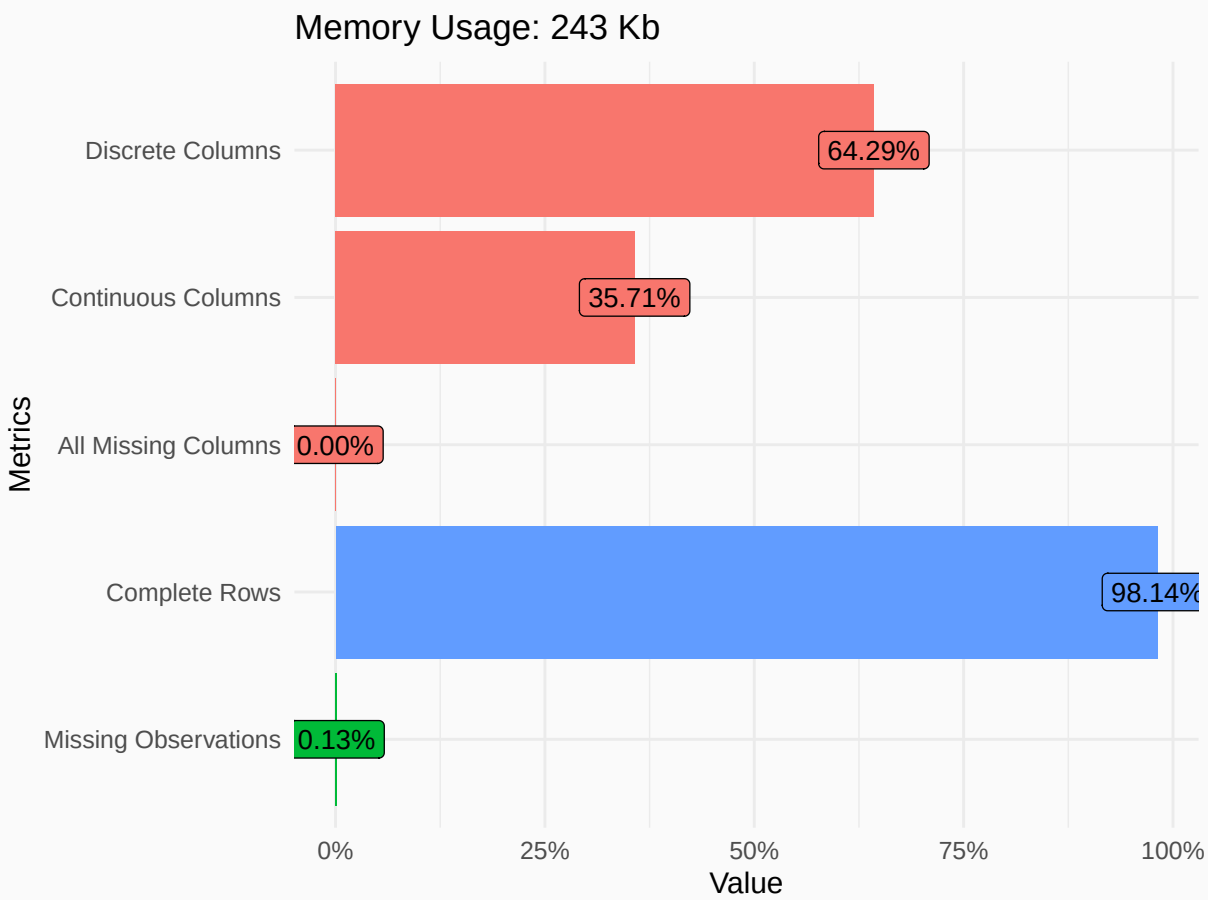
training-datalab.com/projects/chilean-civil-service

A Novel Dataset on Members of the Chilean Civil Service. Conjunto de datos con información detallada de 431 altos directivos públicos del primer nivel jerárquico del servicio civil chileno (2009-2017). Fue creado con dos solicitudes de acceso a información pública realizadas a la DNSC y una revisión de 1.396 documentos públicos, principalmente decretos y noticias institucionales. Estos documentos fueron revisados con algoritmos de minería de datos.

Artículo públicado en *Revista de Gestión Pública* (González-Bustamante et al., 2020), código en R en GitHub (bajo embargo hasta mediados de 2022). Preprint en inglés disponible en SocArXiv (González-Bustamante et al., 2021).

Proceso de recolección de información





Creación del conjunto de datos

Tesseract. Motor para reconocimiento óptico que se comenzó a desarrollar en 1995 en Bristol y desde 2005 está disponible como un código abierto y actualmente es usado por Google (Smith, 2007).

La aplicación de OCR sigue varias etapas. Primero, se identifican componentes conectados y se anidan los contornos y las líneas de texto. Luego, las líneas se dividen en palabras considerando espacios. Cada palabra se intenta reconocer con diccionarios de datos entrenados (*baseline*).

Este proceso implica machine learning, por tanto, se realiza una iteración con el fin de reconocer palabras que en una primera instancia no fueron identificadas. Finalmente, se revisan los espaciados difusos.

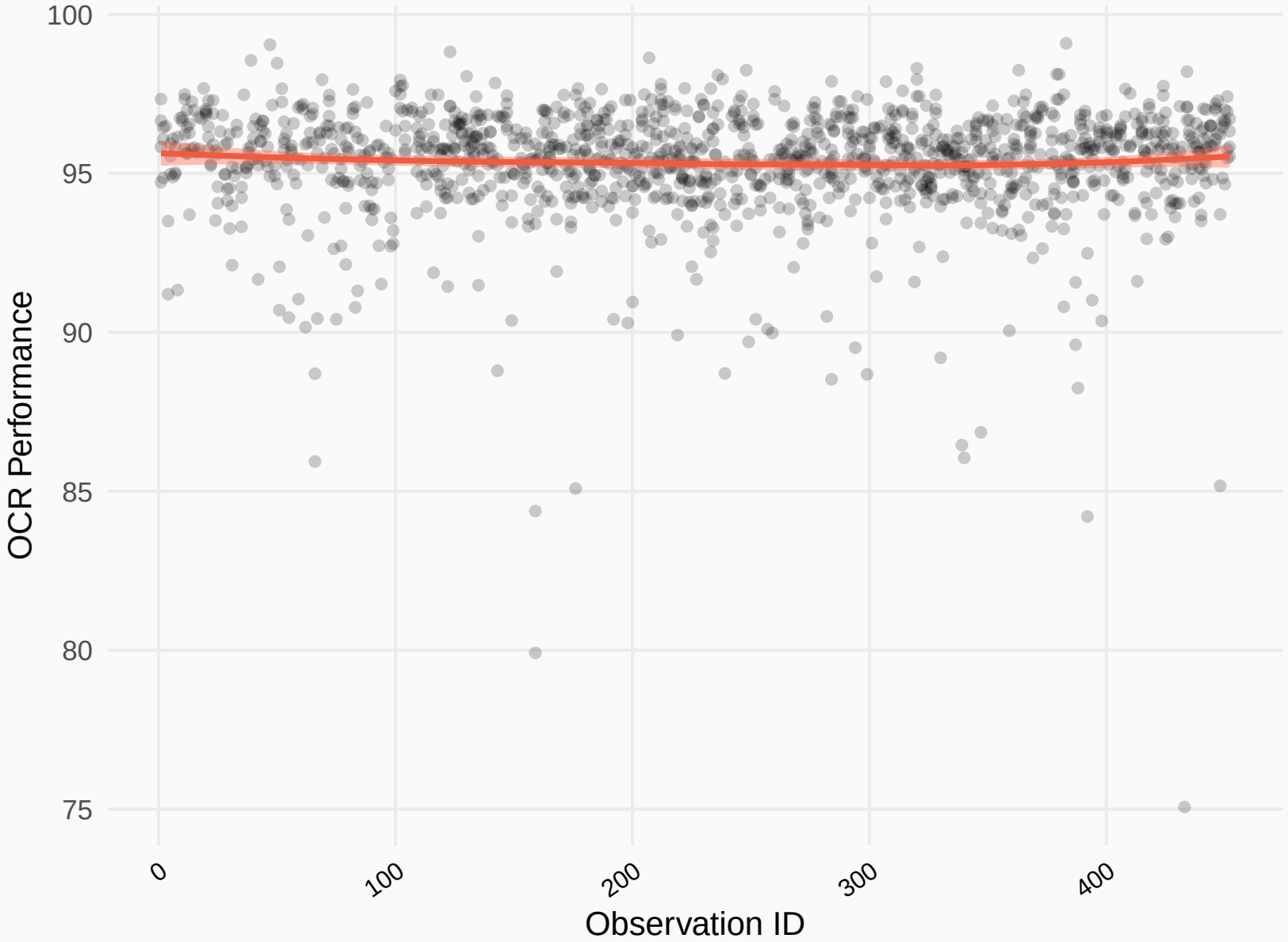
Creación, validación y anonimización

Precisión del algoritmo OCR. Se evaluó la proporción de texto que logró identificar correctamente. Se contrastan las palabras identificadas con diccionarios del idioma usados para entrenar los modelos Long Short Term Memory (LSTM) usados por Tesseract.

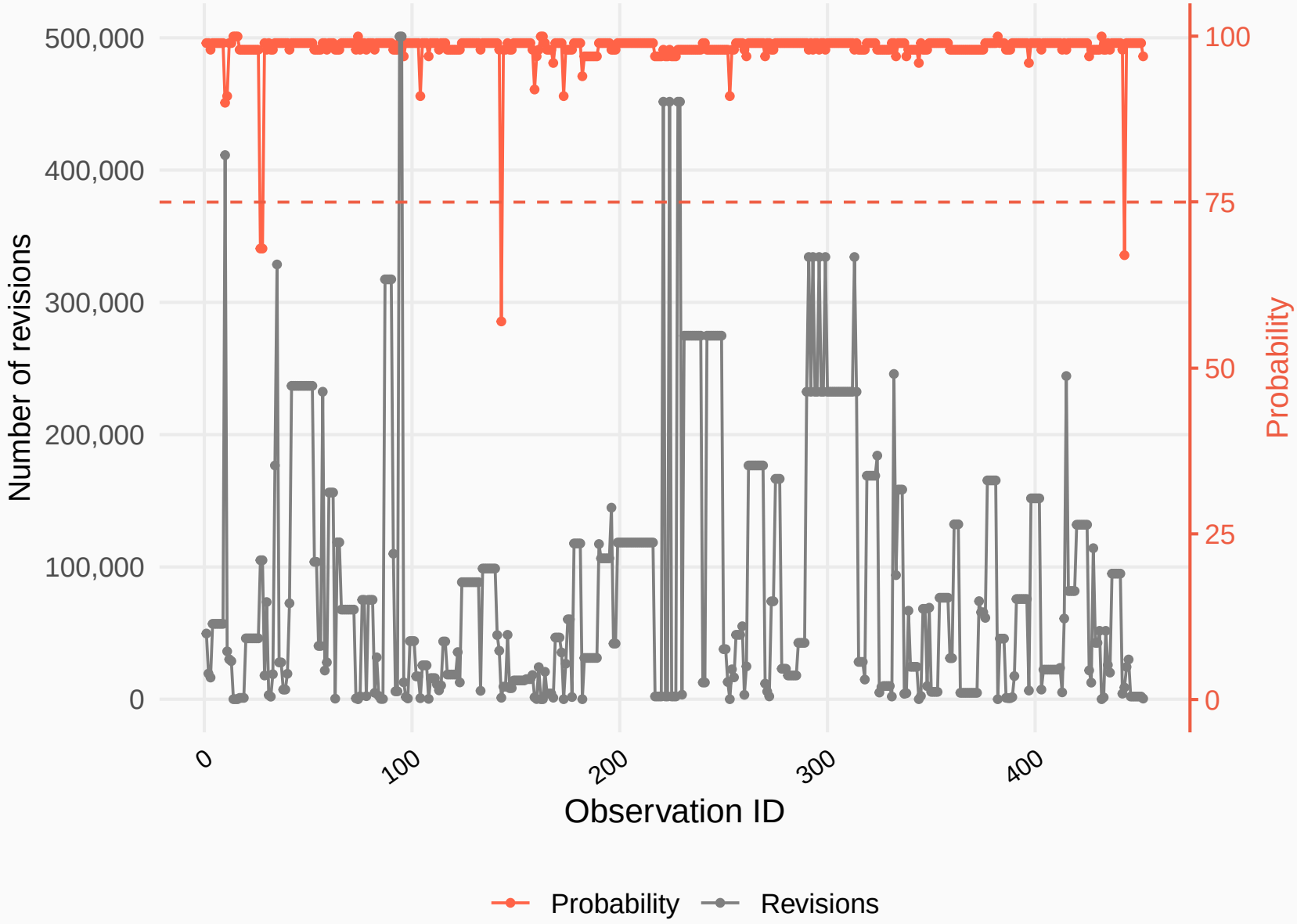
Validación automática de sexo. Usando el primer nombre de cada caso y una base de datos de nombres de diversos países del mundo, sexo y su predicción estimada creada por Casper Strömgren en 2013 (Wais, 2016). Esta base crece diariamente con datos extraídos de perfiles de redes sociales y en el momento de la revisión contaba con 111.541.298 observaciones, de las cuales 210.959 (0,19 %) correspondían a casos de Chile.

Algoritmo criptográfico. Las variables que contienen información personal fueron anonimizadas en la versión final del conjunto de datos con Secure Hash Algorithm de 256 caracteres (SHA256) basado en una función *hash* que bloquea la ingeniería-reversa (Shinder y Cross, 2008).

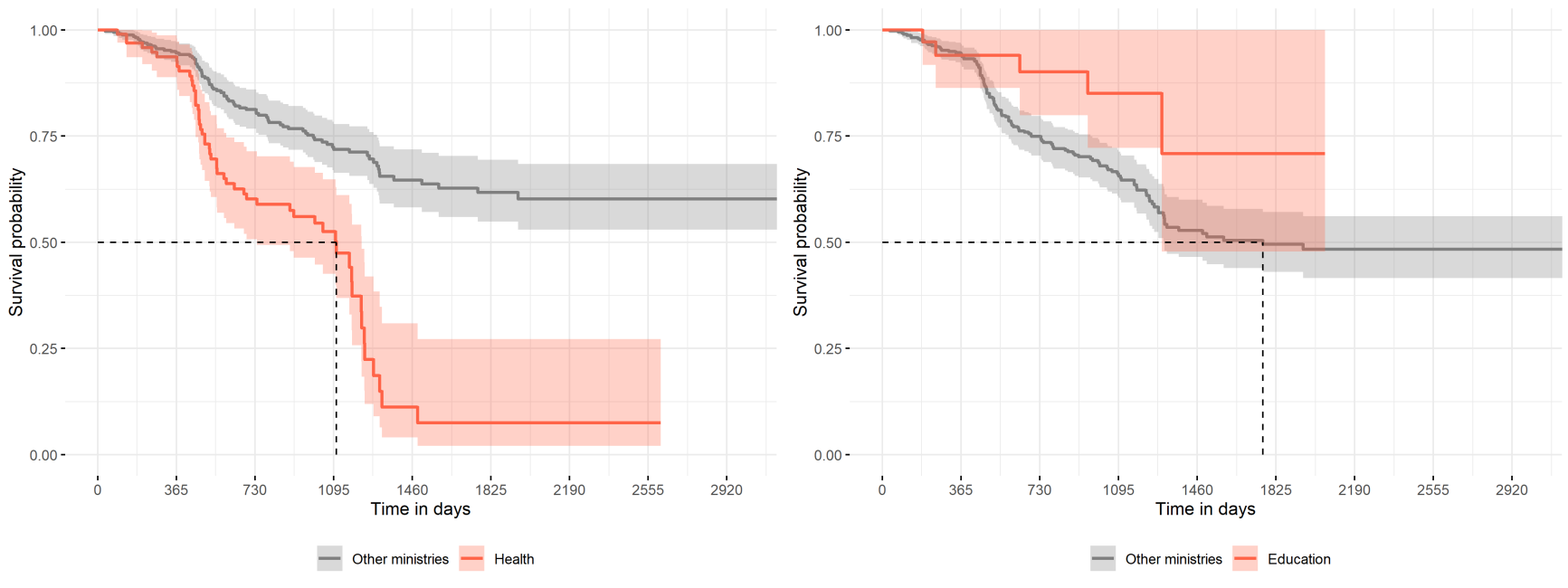
Desempeño y precisión del algoritmo OCR



Validación de la variable sexo



Curvas Kaplan-Meier para altos directivos públicos



Fuente: Elaboración con base en González-Bustamante et al. (2020).

NLP para eventos en América Latina

Revisión automatizada de reportes de prensa

Lote	Archivos	Años	Formato	Tamaño
Lote 01	LAWR-1975 a LAWR-1979 Incluyendo 1997	5	CSV UTF-8	9,56 MB
Lote 02	LAWR-1980 a LAWR-1998 Excluyendo 1997 Incluyendo primera mitad de 2003	18,5	Imágenes PNG	38,5 GB
Lote 03	LAWR-1999 a LAWR-2021 Excluyendo primera mitad de 2003	22,5	Archivos PDF	339 MB

Nota: Revisión de 12 países de América Latina gracias a St Hilda's College Muriel Wise Fund.

Fuente: Elaboración con base en González-Bustamante (2021a).

Detalles logísticos: Documentación/Metadata

Repositorio permanente con un **Digital Object Identifier (DOI)**, aunque existe período de embargo (dos años).

Data Management Plan (DMP) registrado con detalles y procedimientos técnicos.

Control de versiones Git conectado con **Open Science Framework (OSF)** con DOI permanente para asegurar replicabilidad de todo el código programado cuando se libere, información de los paquetes utilizados y las versiones de R y Python.

Detalles logísticos: Almacenamiento

Repositorios de trabajo alojados de forma privada con control de versiones en GitHub. Acceso es controlado con autentificación criptográfica con **two-factor authentication (2FA)** con dispositivos físicos de seguridad USB que emiten **one-time passwords** para generar una autentificación criptográfica basada en protocolos Fast IDentity Online (FIDO) 2 y Universal 2nd Factor (U2F).

Respaldados en **Hierarchical File Server (HFS)** para su recuperación en casos de incidentes no previstos, también controlado con 2FA. Estos archivos de seguridad se encuentran en un hub encriptado con un cifrado 256-bit AES, por tanto, soporta el almacenamiento de información pública, datos institucionales internos e información confidencial.

Respaldo automático diario, mantenimiento ligero semanal y profundo cada 28 días. Procedimiento programado hasta mayo de 2024.

Detalles logísticos: Accesos y seguridad

El etiquetado de datos para el entrenamiento de algoritmos de machine learning se realiza en una **plataforma en línea** conectada con los repositorios con información en formato JavaScript Object Notation (JSON).

La plataforma de etiquetado cuenta con **protección de HIPPA** y además cumple con California Consumer Privacy Act (CCPA) y General Data Protection Regulation (GDPR).

El acceso de los codificadores es restringido mediante contraseñas seguras solo a tareas de etiquetado y al terminar el proceso sus credenciales fueron revocadas inmediatamente.

Detalles logísticos: Almacenamiento de largo plazo

La base de datos final y su documentación serán depositados en el repositorio digital de **Bodleian Libraries** de University of Oxford.

El código programado será liberado y se incorporará al **GitHub Archive Program**. Como parte de este programa a comienzos de 2020 instantáneas físicas con códigos públicos fueron archivados en película endurecida (1.000 años de duración) y depositados en **GitHub Artic Code Vault** en una mina de carbón clausurada en una montaña en Noruega. Este procedimiento se repetirá cada cierto tiempo.

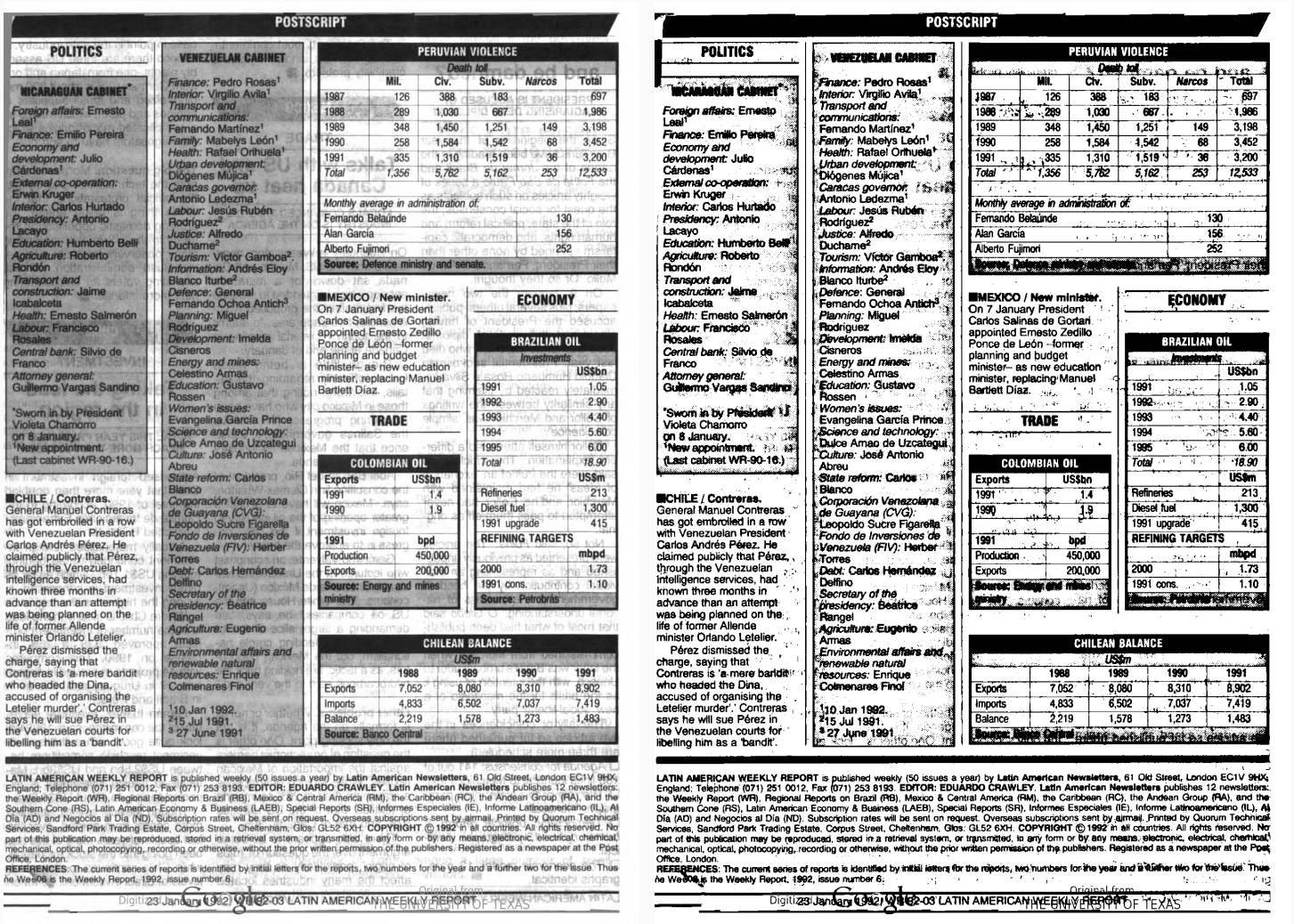
Detalles logísticos: Liberación de datos

El acceso a los archivos de LAWR se realizó a través de distintas suscripciones institucionales como se mencionó previamente, por tanto, estos datos no serán liberados y se almacenan con altos estándares de seguridad.

La información elaborada con algoritmos de OCR y machine learning, los datos y su documentación serán liberados en octubre de 2023 para su reutilización bajo una licencia **Creative Commons Attribution 4.0 International (© BY 4.0)**.

Esta licencia de acceso abierto permite compartir, reutilizar y readaptar los datos sin restricciones adicionales siempre y cuándo se otorgue el reconocimiento apropiado.

Algoritmos de binarización de imágenes



POSTSCRIPT

POLITICS

NICARAGUAN CABINET

Foreign affairs: Ernesto Leal[1]
Finance: Emilio Pereira
Economy and development: Julio Cárdenas[1]
External co-operation: Erwin Kruger
Interior: Carlos Hurtado
Presidency: Antonio Lacayo
Education: Humberto Belli
Agriculture: Roberto Rondón
Transport and construction: Jaime Icabalceta
Health: Ernesto Salmerón
Labour: Francisco Rosales
Central bank: Silvio de Franco
Attorney general: Guillermo Vargas Sandino

*Sworn in by President Violeta Chamorro on 8 January.
[1]New appointment.
(Last cabinet WR-90-16.)

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Pérez dismissed the charge, saying that Contreras is 'a mere bandit who headed the Dina, accused of organising the Letelier murder'.' Contreras says he will sue Pérez in the Venezuelan courts for libelling him as a 'bandit'.

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Urban development: Diógenes Mújica[1]
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[1]10 Jan 1992.
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[3]27 June 1991

PERUVIAN VIOLENCE

Death toll

	Mil.	Civ.	Subv.	Narcos	Total
1987	126	388	183		697
1988	289	1,030	667		1,986
1989	348	1,450	1,251	149	3,198
1990	258	1,584	1,542	68	3,452
1991	335	1,310	1,519	36	3,200
Total	*1,356*	*5,762*	*5,162*	*253*	*12,533*

Monthly average in administration of:

Fernando Belaúnde	130
Alan García	156
Alberto Fujimori	252

Source: Defence ministry and senate.

MEXICO / New minister. On 7 January President Carlos Salinas de Gortari appointed Ernesto Zedillo Ponce de León –former planning and budget minister– as new education minister, replacing Manuel Bartlett Díaz.

TRADE

COLOMBIAN OIL

Exports	US$bn
1991	1.4
1990	1.9
1991	**bpd**
Production	450,000
Exports	200,000

Source: Energy and mines ministry

ECONOMY

BRAZILIAN OIL

Investments

	US$bn
1991	1.05
1992	2.90
1993	4.40
1994	5.60
1995	6.00
Total	*18.90*
	US$m
Refineries	213
Diesel fuel	1,300
1991 upgrade	415
REFINING TARGETS	
	mbpd
2000	1.73
1991 cons.	1.10

Source: Petrobrás

CHILEAN BALANCE

US$m

	1988	1989	1990	1991
Exports	7,052	8,080	8,310	8,902
Imports	4,833	6,502	7,037	7,419
Balance	2,219	1,578	1,273	1,483

Source: Banco Central

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REFERENCES: The current series of reports is identified by initial letters for the reports, two numbers for the year and a further two for the issue. Thus the WR-92-06 is the Weekly Report, 1992, issue number 6.

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Nota: Página pre-binarización y luego del algoritmo de Sauvola y Pietikäinen (2000).

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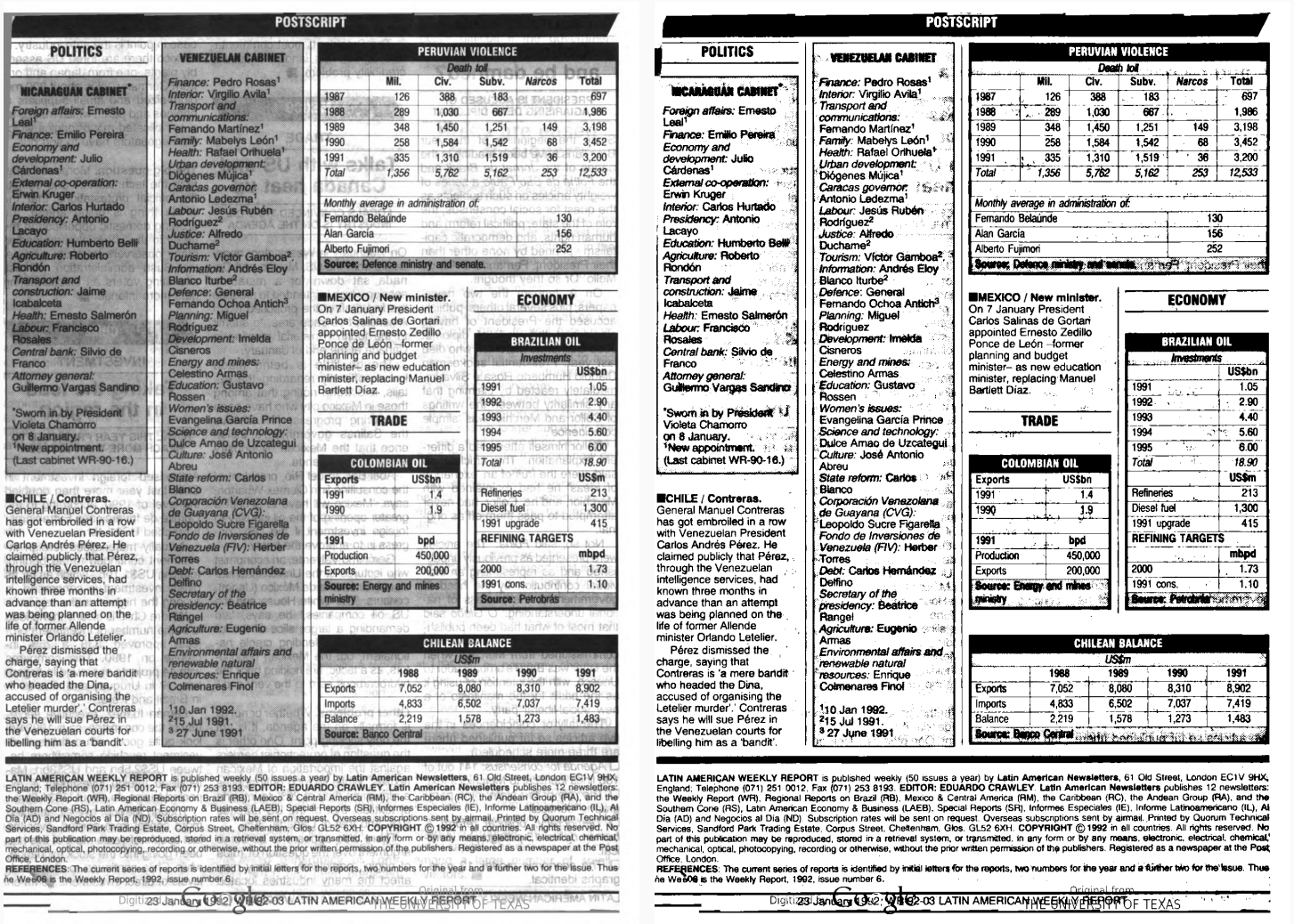

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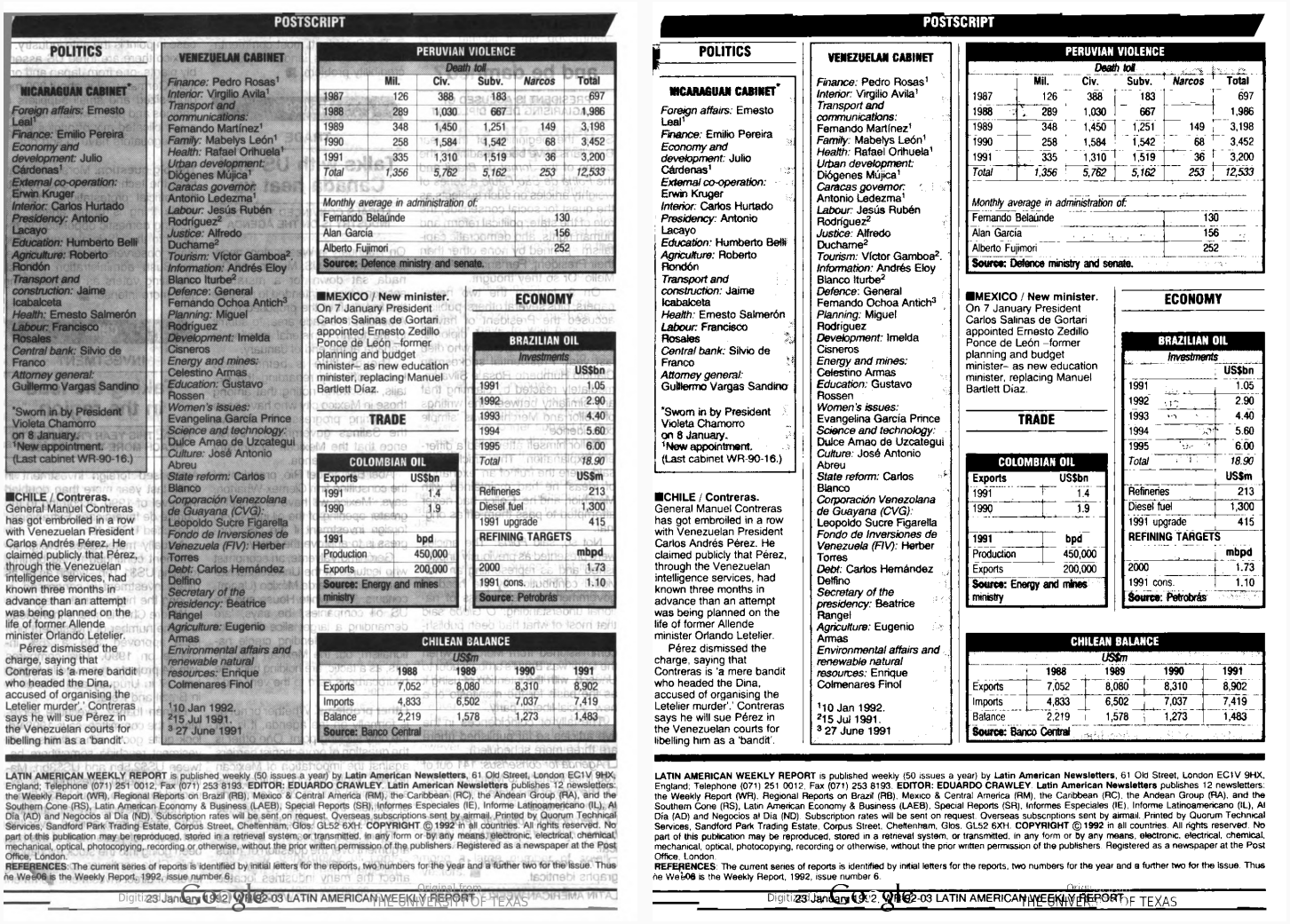

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1990	258	1,584	1,542	68	3,452
1991	335	1,310	1,519	36	3,200
Total	*1,356*	*5,762*	*5,162*	*253*	*12,533*

Monthly average in administration of:

Fernando Belaúnde	130
Alan García	156
Alberto Fujimori	252

Source: Defence ministry and senate.

■MEXICO / New minister. On 7 January President Carlos Salinas de Gortari appointed Ernesto Zedillo Ponce de León – former planning and budget minister – as new education minister, replacing Manuel Bartlett Díaz.

ECONOMY

TRADE

BRAZILIAN OIL

Investments

	US$bn
1991	1.05
1992	2.90
1993	4.40
1994	5.60
1995	6.00
Total	*18.90*

	US$m
Refineries	213
Diesel fuel	1,300
1991 upgrade	415

REFINING TARGETS

	mbpd
2000	1.73
1991 cons.	1.10

Source: Petrobrás

COLOMBIAN OIL

Exports	US$bn
1991	1.4
1990	1.9

1991	bpd
Production	450,000
Exports	200,000

Source: Energy and mines ministry

CHILEAN BALANCE

US$m

	1988	1989	1990	1991
Exports	7,052	8,080	8,310	8,902
Imports	4,833	6,502	7,037	7,419
Balance	2,219	1,578	1,273	1,483

Source: Banco Central

■CHILE / Contreras. General Manuel Contreras has got embroiled in a row with Venezuelan President Carlos Andrés Pérez. He claimed publicly that Pérez, through the Venezuelan intelligence services, had known three months in advance than an attempt was being planned on the life of former Allende minister Orlando Letelier.

Pérez dismissed the charge, saying that Contreras is 'a mere bandit who headed the Dina, accused of organising the Letelier murder'.' Contreras says he will sue Pérez in the Venezuelan courts for libelling him as a 'bandit'.

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REFERENCES. The current series of reports is identified by initial letters for the reports, two numbers for the year and a further two for the issue. Thus the Weekly Report, 1992, issue number 6.

23 January 1992 WR-92-03 LATIN AMERICAN WEEKLY REPORT

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POSTSCRIPT

POLITICS

NICARAGUAN CABINET*

Foreign affairs: Ernesto Leal[1]
Finance: Emilio Pereira
Economy and development: Julio Cárdenas[1]
External co-operation: Erwin Kruger
Interior: Carlos Hurtado
Presidency: Antonio Lacayo
Education: Humberto Belli
Agriculture: Roberto Rondón
Transport and construction: Jaime Icabalceta
Health: Ernesto Salmerón
Labour: Francisco Rosales
Central bank: Silvio de Franco
Attorney general: Guillermo Vargas Sandino

*Sworn in by President Violeta Chamorro on 8 January.
[1]New appointment.
(Last cabinet WR-90-16.)

VENEZUELAN CABINET

Finance: Pedro Rosas[1]
Interior: Virgilio Avila[1]
Transport and communications: Fernando Martínez[1]
Family: Mabelys León[1]
Health: Rafael Orihuela[1]
Urban development: Diógenes Mújica[1]
Caracas governor: Antonio Ledezma[1]
Labour: Jesús Rubén Rodríguez[2]
Justice: Alfredo Duchame[2]
Tourism: Víctor Gamboa[2]
Information: Andrés Eloy Blanco Iturbe[2]
Defence: General Fernando Ochoa Antich[3]
Planning: Miguel Rodríguez
Development: Imelda Cisneros
Energy and mines: Celestino Armas
Education: Gustavo Rossen
Women's issues: Evangelina García Prince
Science and technology: Dulce Amao de Uzcátegui
Culture: José Antonio Abreu
State reform: Carlos Blanco
Corporación Venezolana de Guayana (CVG): Leopoldo Sucre Figarella
Fondo de Inversiones de Venezuela (FIV): Herber Torres
Debt: Carlos Hernández Delfino
Secretary of the presidency: Beatrice Rangel
Agriculture: Eugenio Armas
Environmental affairs and renewable natural resources: Enrique Colmenares Finol

[1]10 Jan 1992.
[2]15 Jul 1991.
[3]27 June 1991

PERUVIAN VIOLENCE

Death toll

	Mil.	Civ.	Subv.	Narcos	Total
1987	126	388	183		697
1988	289	1,030	667		1,986
1989	348	1,450	1,251	149	3,198
1990	258	1,584	1,542	68	3,452
1991	335	1,310	1,519	36	3,200
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Monthly average in administration of:

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23 January 1992 WR-92-03 LATIN AMERICAN WEEKLY REPORT

Digitized by Google Original from THE UNIVERSITY OF TEXAS

Nota: Página pre-binarización y luego del algoritmo de Su et al. (2010).

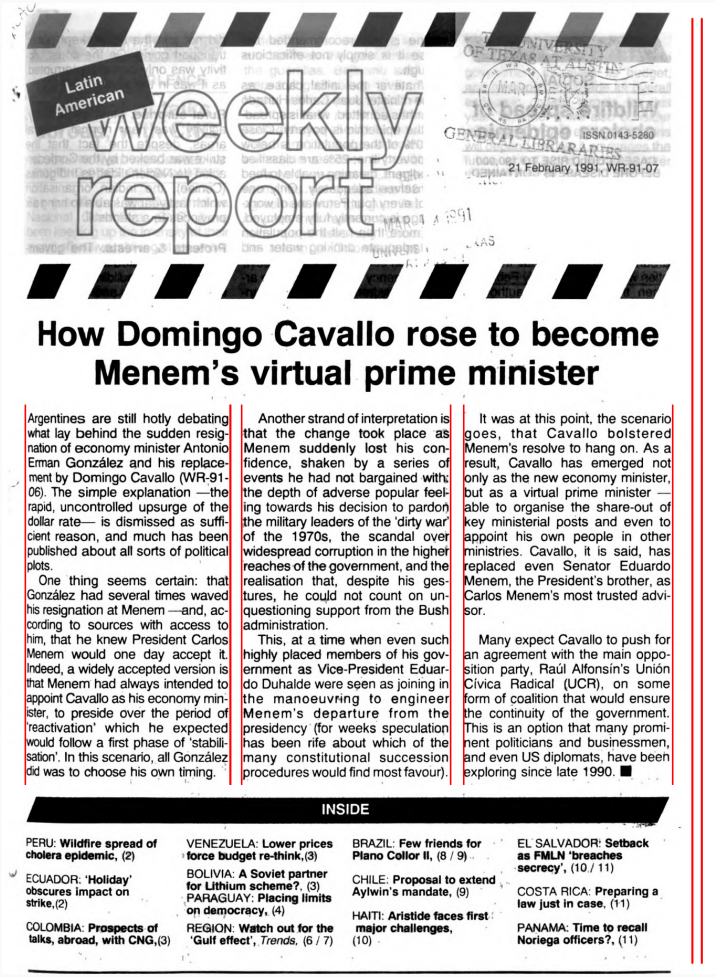
Módulo de análisis de diseño de Tesseract

Durante la etapa de layout analysis resulta particularmente desafiante detectar ciertos contornos que de tablas y columnas (Shafait y Smith, 2010; Smith, 2009).

Para manejar esta dificultad utilizamos el layout analysis de Tesseract aplica un proceso de **tab-stop detection** de varios pasos que permite identificar columnas y luego segmentar los párrafos del texto en bloques.

El algoritmo se aplica sobre el segundo y tercer lote de archivos, lo que implica aplicar el algoritmo sobre archivos de 41 años. Tanto imágenes escaneadas en formato PNG como los documentos en PDF se convierten en texto plano en formato Unicode (TXT UTF-8) que luego se convierte a CSV UTF-8.

Módulo de análisis de diseño de Tesseract



Latin American weekly report

ISSN 0143-5280

21 February 1991, WR-91-07

How Domingo Cavallo rose to become Menem's virtual prime minister

Argentines are still hotly debating what lay behind the sudden resignation of economy minister Antonio Erman González and his replacement by Domingo Cavallo (WR-91-06). The simple explanation —the rapid, uncontrolled upsurge of the dollar rate— is dismissed as sufficient reason, and much has been published about all sorts of political plots.

One thing seems certain: that González had several times waved his resignation at Menem —and, according to sources with access to him, that he knew President Carlos Menem would one day accept it. Indeed, a widely accepted version is that Menem had always intended to appoint Cavallo as his economy minister, to preside over the period of 'reactivation' which he expected would follow a first phase of 'stabilisation'. In this scenario, all González did was to choose his own timing.

Another strand of interpretation is that the change took place as Menem suddenly lost his confidence, shaken by a series of events he had not bargained with: the depth of adverse popular feeling towards his decision to pardon the military leaders of the 'dirty war' of the 1970s, the scandal over widespread corruption in the higher reaches of the government, and the realisation that, despite his gestures, he could not count on unquestioning support from the Bush administration.

This, at a time when even such highly placed members of his government as Vice-President Eduardo Duhalde were seen as joining in the manoeuvring to engineer Menem's departure from the presidency (for weeks speculation has been rife about which of the many constitutional succession procedures would find most favour).

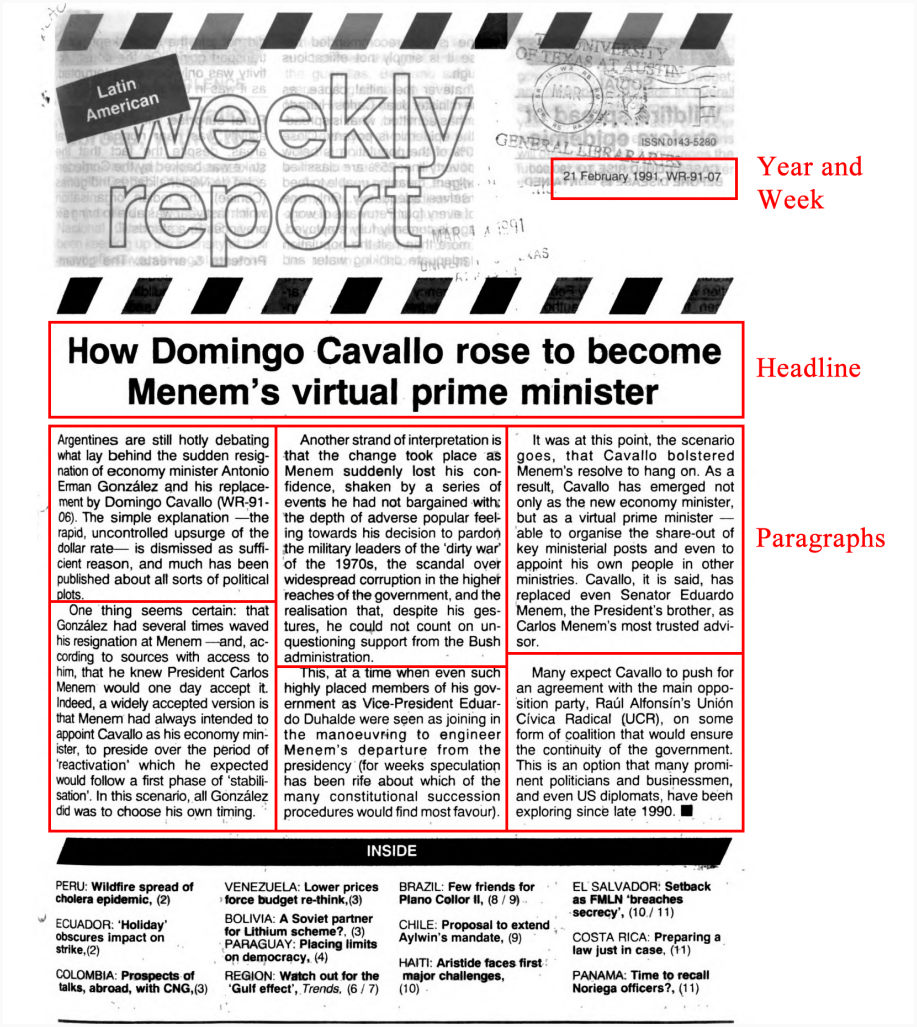
It was at this point, the scenario goes, that Cavallo bolstered Menem's resolve to hang on. As a result, Cavallo has emerged not only as the new economy minister, but as a virtual prime minister — able to organise the share-out of key ministerial posts and even to appoint his own people in other ministries. Cavallo, it is said, has replaced even Senator Eduardo Menem, the President's brother, as Carlos Menem's most trusted advisor.

Many expect Cavallo to push for an agreement with the main opposition party, Raúl Alfonsín's Unión Cívica Radical (UCR), on some form of coalition that would ensure the continuity of the government. This is an option that many prominent politicians and businessmen, and even US diplomats, have been exploring since late 1990. ■

INSIDE

Nota: Aplicación de líneas tab-stop y estructura de columnas.

Módulo de análisis de diseño de Tesseract



Latin American weekly report

ISSN 0143-5280

21 February 1991, WR-91-07

Year and Week

How Domingo Cavallo rose to become Menem's virtual prime minister

Headline

Argentines are still hotly debating what lay behind the sudden resignation of economy minister Antonio Erman González and his replacement by Domingo Cavallo (WR-91-06). The simple explanation —the rapid, uncontrolled upsurge of the dollar rate— is dismissed as sufficient reason, and much has been published about all sorts of political plots.

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Paragraphs

INSIDE

Nota: Identificación y segmentación de bloques.

Conjunto de datos dependiente del tiempo

Ministro	Entrada	Salida	Evento	Cuest.	Re-Elección	Legislativo
1	0	30	0	0	1	3
1	30	60	0	0	1	3
1	60	80	0	1	1	4
2	0	15	0	0	1	3
2	15	30	1	1	1	3
2	30	60	0	1	1	3
2	60	80	2	2	1	4

Fuente: Elaboración con base en González-Bustamante (2020, 2021a).

Codificación de datos dependientes del tiempo

Por ejemplo, en González-Bustamante (2021b) fusionamos los conjuntos de datos de ministros de Brasil y Chile entre 1990 y 2014 de Franz y Codato (2016) and González-Bustamante y Olivares (2018).

De esta forma obtenemos un conjunto de **488 observaciones** que codificamos como **dependiente del tiempo** con puntos de corte trimestrales para todo el período con el fin de incorporar la aprobación presidencial y datos macroeconómicos como **time-varying covariates**.

La base se codifica con casos que tienen múltiples observaciones, en este caso *i-th* ministros, según intervalos de tiempo definidos correspondientes a eventos específicos: los cuatro trimestres de cada año. La varianza de las covariables que varían en el tiempo se codifica sobre el intervalo cerrado.

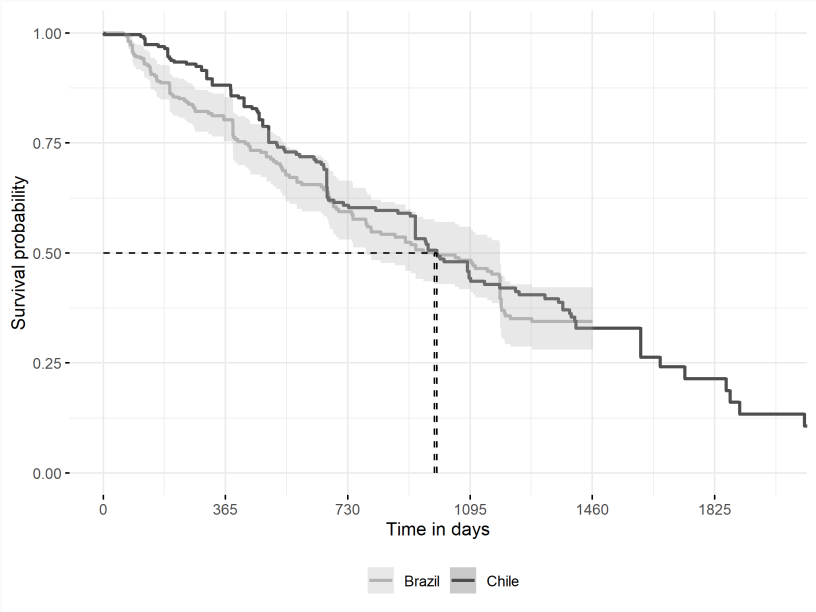
Codificación de datos dependientes del tiempo

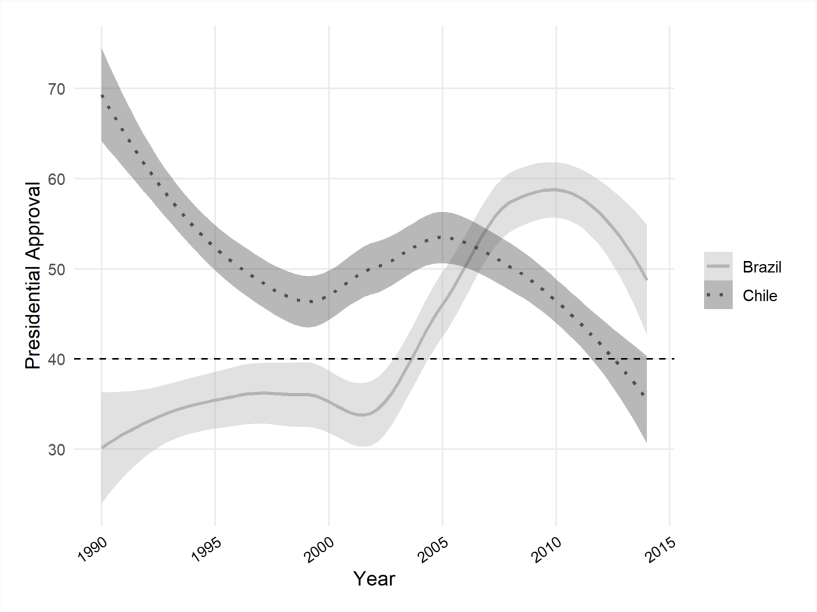
El último intervalo de cada caso termina con la salida (u otro *competing risk*) del ministro Y_i, excepto en los casos censurados administrativamente. Fusionamos en cada intervalo $Z(t)$ **quarterly smoothed presidential approval** con datos de Carlin et al. (2019).

Además, agregamos indicadores macroeconómicos de (World Bank, 2020) (crecimiento e inflación) y el número efectivo de partidos con el indicador de Gallagher y Mitchell (2005) actualizado.

Esto nos permite obtener un conjunto con **4.245 observaciones**.

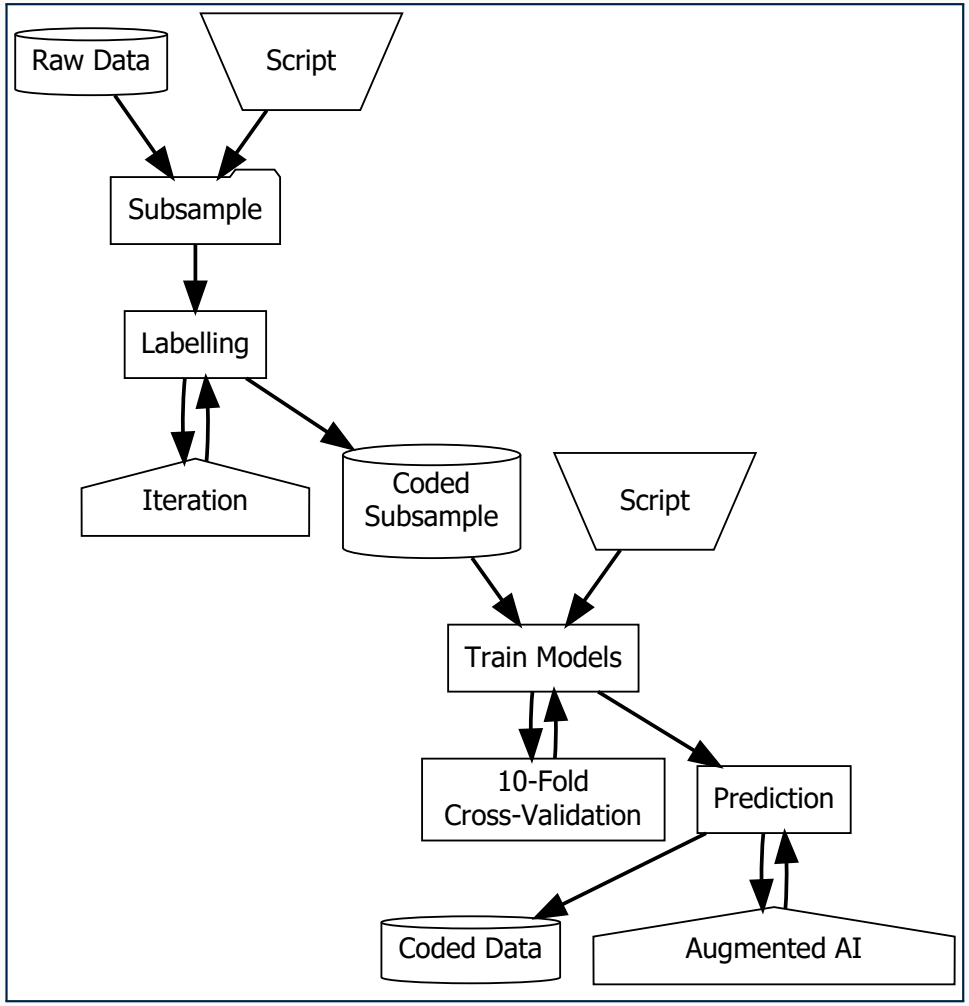
Estimaciones de supervivencia y aprobación

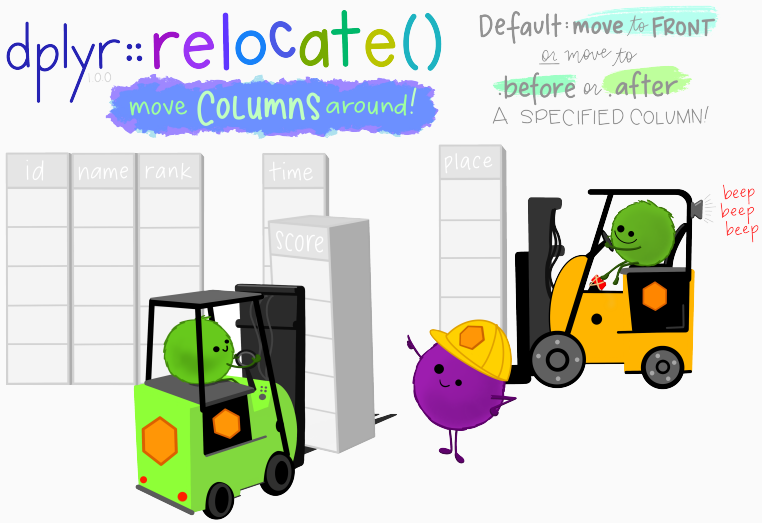




Fuente: Elaboración con base en González-Bustamante (2021b).

NLP en LAWR y modelos supervisados para identificar crisis





Indicadores del proceso de etiquetado

Codificador	Etiquetas	$M(t)$ etiqueta	$\sum$ Tiempo	Consenso
1	966	39s	10h 25m	94.05
2	718	1m 15s	15h 0m	94.84
3	704	38s	7h 29m	94.82
4	318	1m 4s	5h 38m	95.47
5	263	17s	1h 14m	99.26
6	101	1m 17s	2h 9m	88.50

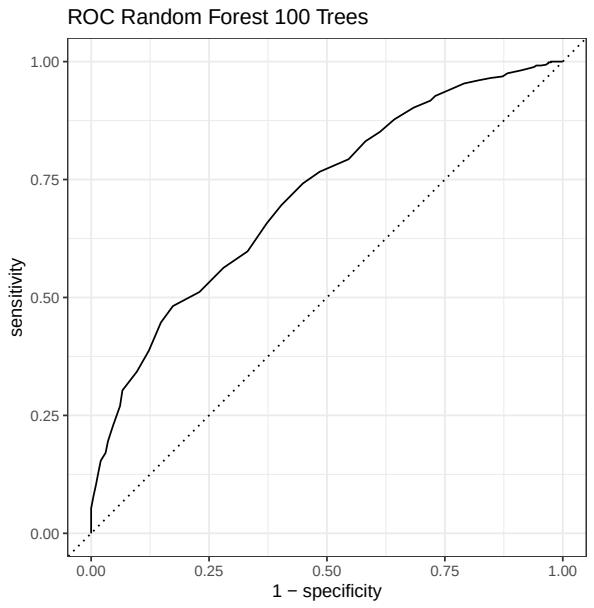
Fuente: Elaboración con base en González-Bustamante (2021a).

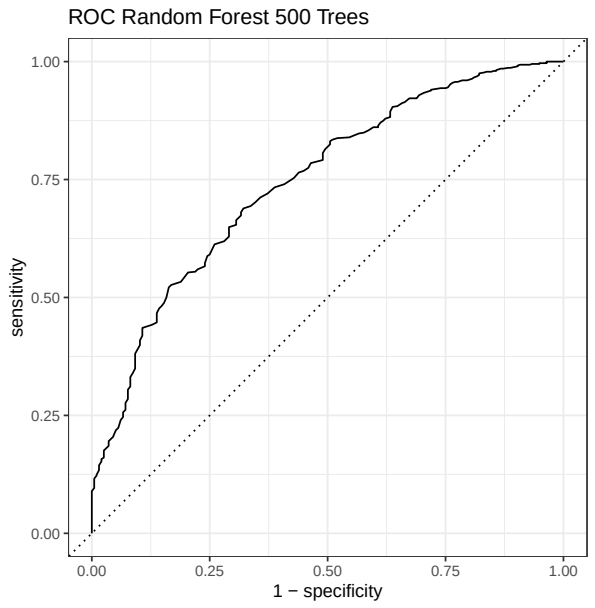
Desempeño de los modelos supervisados

Modelo	Exactitud	Precisión	Sensibilidad
Naïve Bayes	0,714	0,803	0,825
SVM Kernel-Lineal	0,658	0,802	0,728
SVM Kernel-Gaussiano	0,756	0,756	0,999
Random Forest (100 árboles)	0,761	0,760	0,998
Random Forest (500 árboles)	0,761	0,760	0,999

Fuente: Elaboración con base en González-Bustamante (2021a).

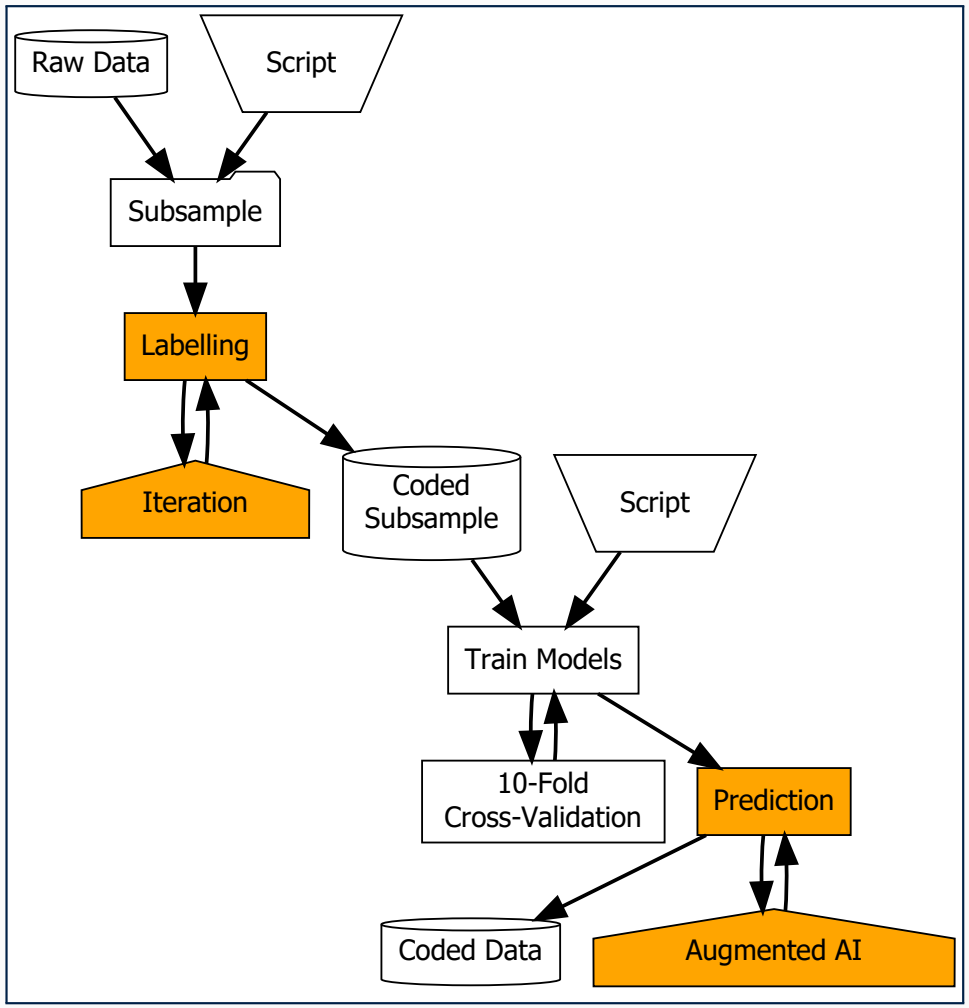
Curvas ROC de modelos Random Forest





Fuente: Elaboración con base en González-Bustamante (2021a).

¿Cómo aumentar la capacidad predictiva?



Training Data Lab

Training Data Lab

© 2020 **Training Data Lab** es un grupo de investigación que se enfoca en aplicaciones de ciencia de datos en ciencias sociales en tres áreas interconectadas: **minería de datos**, **modelamiento econométrico** y **aprendizaje automático**. Por una parte, buscamos recoger datos con técnicas de minería para elaborar modelos econométricos con técnicas observacionales o de emparejamiento.

Por otro lado, nos enfocamos en entrenar modelos con técnicas de aprendizaje automático y profundo etiquetando conjuntos de datos para diferentes proyectos. Lo anterior, nos permite clasificar datos no codificados usando nuestros modelos entrenados incorporando validación humana en el flujo de trabajo, lo que mejora la inteligencia artificial en los procesos de aprendizaje.

Algoritmo clasificador para mociones legislativas

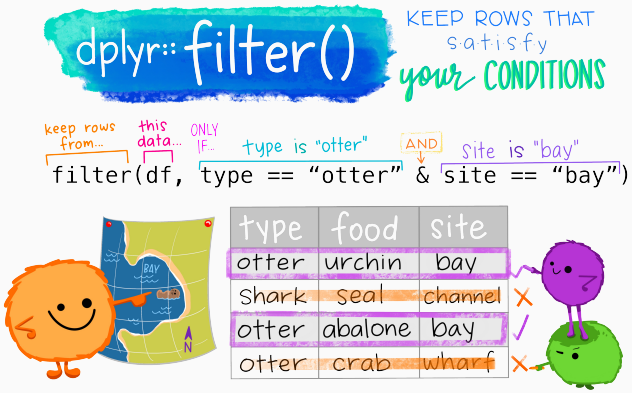
Bastián González-Bustamante, Carla Cisternas, Diego Aguilar y Jaquelin Morillo

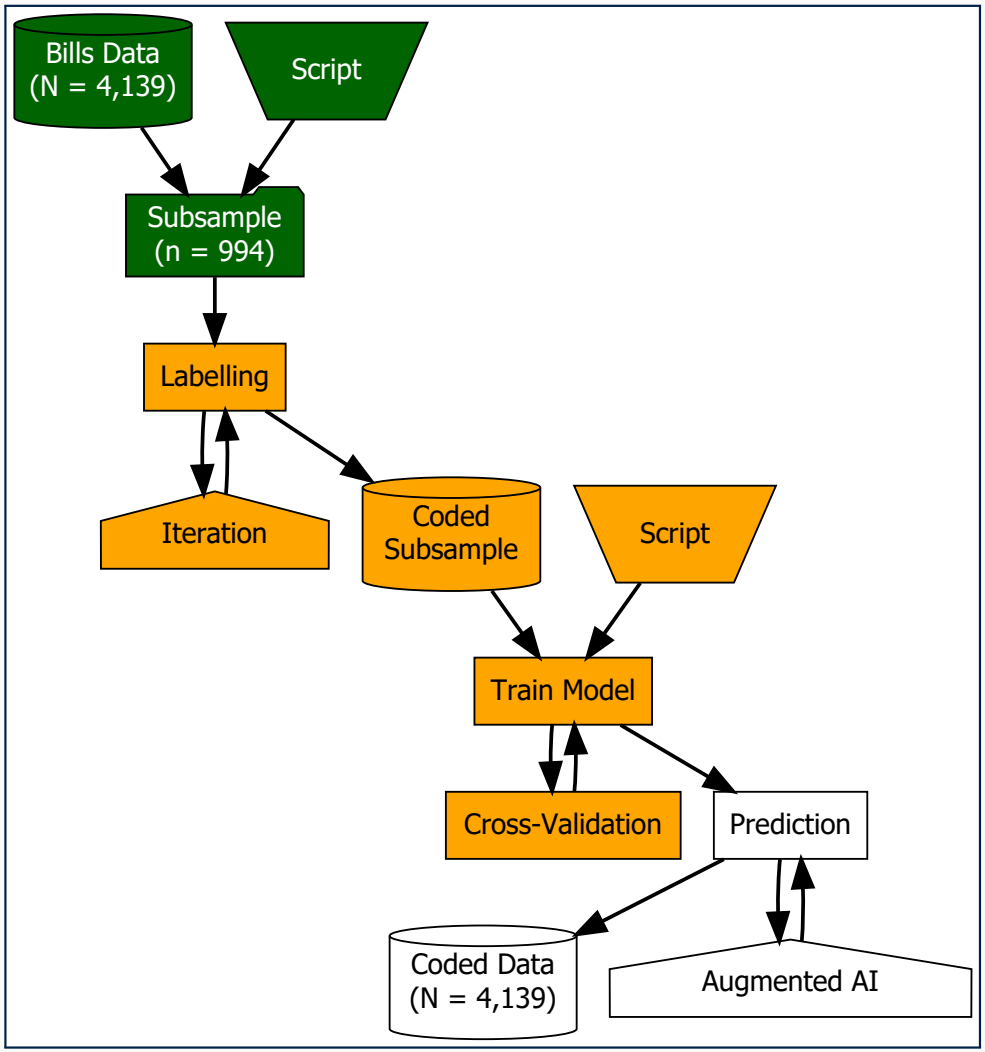
training-datalab.com/projects/chilean-congress-bills

Training Data on Chilean Congress Bills. A partir de un conjunto de datos de proyectos de ley de la Cámara de Diputados de Chile entre 2006 y 2018 ($N = 4.139$), período que corresponde a tres administraciones, extraemos una submuestra aleatoria considerando algunos proyectos de ley por mes.

En esta submuestra realizamos dos procedimientos de codificación de datos para identificar tanto el tema del proyecto de ley como su alcance territorial.

Algoritmo clasificador para mociones legislativas





Proyecto VIP de machine learning

APLICACIONES DE MACHINE LEARNING EN POLÍTICAS PÚBLICAS Y ECONOMÍA

Proyecto VIP de machine learning

Carla Cisternas y Francisco Castañeda (responsables)

Bastián González-Bustamante, Rodrigo Cuevas y Diego Aguilar

training-datalab.com/projects/vip-project-machine-learning

Aplicaciones de Machine Learning en políticas públicas y economía. Este proyecto VIP busca conformar un equipo multidisciplinario de investigación verticalmente integrado para realizar diferentes aplicaciones de aprendizaje automático en temas de políticas públicas y economía. En esta primera versión, nos centraremos en las dinámicas de desinformación en temas económicos y de interés público.

Posteriormente, en futuras versiones, esperamos abordar y analizar otros fenómenos relacionados con la formulación de políticas públicas sectoriales y regulación de mercados.

Proyecto VIP de machine learning

twConstitution

Twitter Online Tracker of the Chilean Referendum for a New Constitution

View the Project on GitHub
bgonzalezbustamante/twConstitution

Twitter Online Tracker of the Chilean Referendum for a New Constitution

version v1.2.6 | issues 1 open | issues 4 closed | DOI 10.17605/OSF.IO/73NDB
license CC-BY-4.0 | made with R v4.0.2 | made with Jekyll

This is a Twitter online tracker of the Chilean referendum for a new Constitution in October 2020, which contains daily datasets on **#Apruebo** (see words network, *forthcoming*) and **#Rechazo** (see words network, *forthcoming*) viewpoints on this social media.

Data sets are scraped and uploaded regularly. Some of the variables are date, hour, username, tweet text, RT count, fav count, location, among others. The data was collected during the afternoon each day. A couple of exceptions, such as October 6th and 26th, were collected early morning on the following day. This is not an issue because the data could be sliced, and in order to work with the whole period, it is necessary to merge the sets and retain unique cases.

Dataset	Date	Year	N	Size	Format
#Apruebo	Nov. 01	2020	45,195	46.5 MB	CSV
#Rechazo	Nov. 01	2020	22,142	24.0 MB	CSV
#Apruebo	Oct. 31	2020	50,244	52.1 MB	CSV
#Rechazo	Oct. 31	2020	27,331	29.9 MB	CSV
#Apruebo	Oct. 30	2020	53,889	56.1 MB	CSV
#Rechazo	Oct. 30	2020	33,479	36.6 MB	CSV

Agradecimientos y referencias

Agradecimientos I

Senior Public Managers: A Novel Dataset on Members of the Chilean Civil Service

Agradezco a Matías Astete y Berenice Orvenes, coautores del artículo que además se hicieron cargo principalmente de la validación de información y recolección de fuentes para la aplicación de algoritmos.

Esta investigación fue financiada por la Facultad de Administración y Economía de la Universidad de Santiago de Chile.

Agradecimientos II

Stability during Presidential Approval Crises in Brazil and Chile

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A Political Events Data Set of 12 Latin American Presidential Democracies

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